HAWAII ADMINISTRATIVE RULES

TITLE 12 DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS

SUBTITLE 8

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH

CHAPTER 202

TOXIC MATERIALS AND HARMFUL PHYSICAL AGENTS

Historical Note: Chapter 202 of title 12 is based upon chapter 304 of the Hawaii Occupational Safety and Health Standards, Rules and Regulations. [Eff. 7/11/74; am 6/7/76; am 12/30/76; am 1/9/78; am 8/11/78; am 8/23/79; R 7/12/82]

§12-202-1 General requirements. (a) The purpose of this chapter is to prescribe minimum standards for the maintenance of employee health and safety in workplaces with an environment which contains toxic materials or harmful physical agents. Specific standards for particular toxic materials or harmful physical agents are contained in section 12-202-13 and subsequent sections. The specific standards take precedence over the more general requirements.

(b) Caution information in the form of signs, notices, etc., shall be provided to employees at each location where there is exposure to toxic materials or harmful physical agents. Labels shall be affixed to all toxic materials or harmful physical agents, or their containers, warning of their potential danger.

(1) Radiation areas under the jurisdiction of the Nuclear Regulatory Commission (NRC) shall be posted as required by the NRC. Areas in which there may be exposure to biological hazards shall be posted.

(2) In other areas, when there is no exposure except when working with the toxic materials or harmful physical agents, caution signs shall be posted to indicate the potential hazards of any activities, processes, or materials. For example, signs such as "Hazardous Materials, Do Not Disturb" or "Caution: Keep Flames Away," or "In Case of Fire, use Sand," etc.

(c) Employers shall post prominently or make available to affected employees information regarding hazards posed by toxic materials or harmful physical agents in the employer's workplace. The information shall include suitable precautions, relevant symptoms, emergency treatment in case of overexposure, and, where appropriate, the availability of medical examination at no cost to the employee.

(d) Wherever the use of personal protective equipment is deemed appropriate or necessitated by exposure to toxic materials or harmful physical agents, employers shall provide this equipment and it shall be used and maintained in a sanitary and reliable condition.

(e) All employers shall measure, monitor, and record employee exposure to toxic materials or harmful physical agents. The measurement shall determine if any employee may be exposed to concentrations of the toxic materials or harmful physical agents at or above the permissible exposure limit. The determination shall be made each time there is a change in production, process, or control measures which could result in an increase in

concentrations of these materials or agents. A written record of the determination shall be made and shall contain at least:

(1) Any information, observations, or calculations which may indicate employee exposure to toxic or potentially toxic materials or harmful physical agents;

(2) Any measurements taken;

(3) Any employee complaints of symptoms which may be attributable to exposure to toxic or potentially toxic materials or harmful physical agents;

(4) Date of determination, work being performed at the time, location within work site, name, and social security number of each employee considered; and

(5) Any other information which may be relevant to employee exposure.

(f) When medical examinations are appropriate for adequate employee protection, the employer shall, at the employer's cost, provide examinations to best determine the effect of toxic material or harmful physical agents on the health of employees.

[Eff. 7/12/82; am 6/16/84; am 3/22/91] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-2 Definitions. As used in this chapter:

"Access" means the right and opportunity to examine and copy.

"Air contaminant" means the equivalent of the terms "material" and "substance" for this chapter.

"Analysis using exposure or medical records" means any compilation of data, or any research, or statistical or other studies based at least in part on information collected from individual employee exposure or medical records or information collected from health insurance claims records, provided that either the analysis has been reported to the employer or no further work is currently being done by the person responsible for preparing the analysis.

"ANSI" means the American National Standards Institute.

"ANSI Z9.2" means ANSI Z9.2-1979, Fundamentals Governing the Design and Operation of Local Exhaust Systems.

"ANSI Z88.2" means ANSI Z88.2-1984, Practices for Respiratory Protection.

"Coal tar pitch volatiles" mean, as used in table 202-1, the fused polycyclic hydrocarbons which volatilize from the distillation residues of coal, petroleum (excluding asphalt, CAS 8052-42-4 and CAS 64742-93-4), wood, and other organic matter.

"Designated representative" means any individual or organization to whom an employee gives written authorization to exercise a right of access. For the purpose of access to employee exposure records and analyses using exposure or medical records, a recognized or certified collective-bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

"Employee" means a current employee, a former employee, or an employee being assigned or transferred to work where there will be exposure to toxic materials or harmful physical agents.

"Employee exposure record" means a record containing any of the following kinds of information:

(1) Environmental (workplace) monitoring or measuring of a toxic substance or a harmful physical agent, including personal, area, grab, or wipe sampling, or any other form of sampling, as well as related collection and analytical methodologies, calculations, and other background data relevant to interpretation of the results obtained;

(2) Biological monitoring results which directly assess the absorption of a substance or agent by body systems (e.g., the level of a chemical in the blood, urine, breath, hair, fingernails, etc.) but not including results which assess the biological effect of a substance or agent or which assess an

employee's use of alcohol or drugs;

(3) Material safety-data sheets; and

(4) A chemical inventory or any other record which reveals where and when used and the identity (e.g., chemical, common, or trade name) of a toxic substance or harmful physical agent.

"Employee medical record" means a record concerning the health status of an employee which is made or maintained by a physician or nurse, or any other health care personnel or technician, including:

(1) Medical and employment questionnaires or histories (including job description and occupational exposures);

(2) The results of medical examinations (pre-employment, pre-assignment, periodic, or episodic) and laboratory tests (including chest and other X-ray examinations taken for the purposes of establishing a base-line or detecting occupational illness, and all biological monitoring not defined as an "employee exposure record");

(3) Medical opinions, diagnoses, progress notes, and recommendations;

(4) Descriptions of treatments and prescriptions;

(5) First-aid records; and

(6) Employee medical complaints;

but does not include medical information in the form of:

(A) Physical specimens (e.g., blood or urine samples) which are routinely discarded as a part of normal medical practice; or

(B) Records concerning health insurance claims if maintained separately from the employer's medical program and its records, and not accessible to the employer by employee name or other direct personal identifier (e.g., social security number, payroll number, etc.); or

(C) Records created solely in preparation for litigation which are privileged from discovery under the applicable rules of procedure or evidence; or

(D) Records concerning voluntary employee assistance programs (alcohol, drug abuse, or personal counseling programs) if maintained separately from the employer's medical program and its records.

"Employer" means a current employer, a former employer, or a successor employer.

"Excursion factor" means the magnitude of the permissible excursion above the PEL-TWA for those substances not preceded by a "C" in table 202-1 and not found in table 202-2.

"Exposure" or "exposed" means that an employee is subjected to a toxic material or harmful physical agent in the course of employment through any route of entry, such as inhalation, ingestion, skin contact, or absorption, and includes past exposure and potential exposure.

"Health professional" means a physician, occupational health nurse, industrial hygienist, toxicologist, or epidemiologist, providing medical or other occupational health services to exposed employees.

"Material" see "Air contaminant".

"Permissible Exposure Limit (PEL)" means the airborne concentrations of substances to which it is believed that nearly all workers may be exposed with no adverse effect.

"Permissible Exposure Limit-Ceiling (PEL-C)" means the concentration that shall not be exceeded even instantaneously. The PEL-C is the employee's exposure which shall not be exceeded during any part of the work day. If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure which shall not be exceeded at any time over a working day.

"Permissible Exposure Limit-Short Term Exposure Level (PEL-STEL)" means the employee's 15-minute time weighted average exposure which shall not be exceeded at any time

during a work day unless another time limit is specified in a parenthetical notation below the limit. If another time period is specified, the time weighted average exposure over that time limit shall not be exceeded at any time during the work day.

"Permissible Exposure Limit-Time Weighted Average (PEL-TWA)" means the employee's average airborne exposure which shall not be exceeded in any 7- to 8-hour work shift of a 40-hour work week.

"Record" means any item, collection, or grouping of information regardless of the form or process by which it is maintained (e.g., paper document, microfiche, microfilm, X-ray film, or automated data processing).

"SIC" means the Standard Industrial Classification.

"Specific chemical identity" means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

"Specific written consent" means a written authorization containing:

(1) The name and signature of the employee authorizing the release of medical information;

(2) The date of the written authorization;

(3) The name of the individual or organization that is authorized to release the medical information;

(4) The name of the designated representative (individual or organization) that is authorized to receive the released information;

(5) A general description of the medical information that is authorized to be released;

(6) A general description of the purpose for the release of the medical information; and

(7) A date or condition upon which the written authorization will expire (if less than one year); but

A written authorization does not authorize the release of medical information not in existence on the date of written authorization, unless the release of future information is expressly authorized, and does not operate for more than one year from the date of written authorization. A written authorization may be revoked in writing prospectively at any time.

"Substance" see "Air contaminant".

"Toxic material or harmful physical agent" means any chemical substance, biological agent (bacteria, virus, fungus, etc.), or physical stress (noise, heat, cold, vibration, repetitive motion, ionizing and non-ionizing radiation, hypo- or hyperbaric pressure, etc.) which:

(1) Is listed in the latest printed edition of the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemical Substances (RTECS); or

(2) Has yielded positive evidence of an acute or chronic health hazard in testing conducted by, or known to, the employer; or

(3) Is the subject of a material safety-data sheet kept by or known to the employer indicating that the material may pose a hazard to human health.

"Trade secret" means any confidential formula, pattern, process, device, or information or compilation of information that is used in an employer's business and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it. [Eff. 7/12/82; am 5/28/83; am 6/16/84; am 8/5/88; am 3/22/91] (Auth: HRS §396-3) (Imp: HRS §396-3)

§12-203-1 REPEALED. [Eff 7/12/82; am 6/16/84; am 3/22/91; R12/29/00] (Auth: HRS

§396-4) (Imp: HRS §396-4)

§12-202-3.1 Access to employee exposure and medical records. (a) Incorporation of federal standard. Title 29, Code of Federal Regulations, section 1910.1020, entitled "Access to employee exposure and medical records", published by the Office of the Federal Register, National Archives and Records administration, on September 29, 1988; and the amendments published on December 13, 1988; June 7, 1989; June 28, 1990; March 7, 1996, and redesignated June 20, 1996, are made a part of this section, except as provided in subsection (b).

(b) Definitions. As used in 29 CFR section 1910.1020 and applied to this section: "§1913.10" means chapter 12-55. [Eff 12/29/00] (Auth: HRS §396-4) (Imp: HRS §396-4)

Historical note: §12-202-3.1 is based substantially upon section 123-203-3. [Eff 7/12/82; am 6/16/84; am 3/22/91; R 12/29/00]

§12-202-4 Threshold limit values. REPEALED. [Eff. 7/12/82; R 6/18/84] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-4.01 Permissible Exposure Levels. REPEALED. [Eff. 6/16/84; R 3/22/91] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-4.02 Air contaminants. (a) An employee's exposure to any substance listed in tables 202-1 and 202-2 in this section, or table 202-3 in section 12-202-9 shall be limited in accordance with the requirements of this section.

(1) Air Contaminants Limits Column. An employee's exposure to any substance listed in table 202-1 shall not exceed the PEL-TWA, PEL-STEL and PEL-Ceiling specified for that substance shown in table 202-1.

(A) Because many industrial exposures are not continuous, but instead are short-term, or intermittent, to which the PEL-TWAs cannot be applied, PEL-STELs for selected air contaminants are listed in table 202-1.

(B) The PEL-STELs listed in table 202-1 are 15-minute time-weighted average (TWA) exposures which shall not be exceeded at any time during a work day.

(C) Exposures at the PEL-STEL shall not be longer than 15-minutes and shall not be repeated more than four times per day. There shall be at least 60 minutes between successive exposures at the PEL-STEL.

(2) Skin Designation. To prevent or reduce skin absorption, an employee's skin exposure to substances listed in table 202-1 with an "X" in the Skin Designation columns shall be prevented or reduced to the extent necessary in the circumstances through the use of gloves, coveralls, goggles, or other appropriate personal protective equipment, engineering controls, or work practices.

(b) Table 202-2.

(1) PEL-TWA. An employee's exposure to any material listed in table 202-2, in any 7- to 8-hour work shift of a 40-hour work week, shall not exceed the PEL-TWA given for that material in table 202-2.

(2) Acceptable ceiling concentration. An employee's exposure to a material listed in table 202-2 shall not exceed at any time during a 7- to 8-hour work shift the acceptable ceiling concentration given for that material in the table.

(c) Effective date. The effective date for the permissible exposure limits specified in the Air Contaminants Limits column of table 202-1 is six months after the effective date of this standard.

(d) Enforcement of the limits are indefinitely stayed for: aluminum alkyls; ethylidine norbornene; hexafluoroacetone; mercury (alkyl compounds); oxygen difluoride; phenylphosphine; and sulfur pentafluoride; until OSHA publishes in the Federal Register a notice that adequate sampling and analytical techniques are developed.

TABLE 2Ø2-1 Limits for Air Contaminants[1]

		Air Contaminant Limits**						
		PEL-TWA*		PEL-STEL[a]		PEL-CEILING		Skin
Substance	CAS No.[b]	ppm[c]	mg/m[3d]	ppm[c]	mg/m[3d]	ppm[c]	desig-nation mg/m[3d]	
Acetaldehyde	75-07-0	100	180	150	270	-	-	-
Acetic acid	64-19-7	10	25	15	37	-	-	-
Acetic anhydride	108-24-7	-	-	-	-	5	20	-
Acetone	67-64-1	750	1,780	1,000	2,375	-	-	-
Acetonitrile	75-05-8	40	70	60	105	-	-	X
2-Acetylaminofluorene	53-96-3	see §12-202-14.1						
Acetylene dichloride		see 1,2-Dichloroethylene						
Acetylene ttrabromide	79-27-6	1	14	1.5	20	-	-	-
Acetylsalicylic acid (Aspirin)	50-78-2	-	5	-	-	-	-	-
Acrolein	107-02-8	0.1	0.25	0.3	0.8	-	-	-
Acrylamide	79-06-1	-	0.03	-	-	-	-	X
Acrylic acid	79-10-7	2	6	-		-	-	X
Acrylonitrile	107-13-1	see §12-202-30						
Aldrin	309-00-2	-	0.25	-	0.75	-	-	X
Allyl alcohol	107-18-6	2	5	4	10	-	-	X
Allyl chloride	107-05-1	1	3	2	6	-	-	-
Allyl glycidyl ether (AGE)	106-92-3	5	22	10	44	-	-	X
Allyl propyl disulfide	2179-59-1	2	12	3	18	-	-	-
"-Alumina	1344-28-1							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Aluminum (as Al)	7429-90-5							
Metal & oxide								
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Pyro powders		-	5	-	-	-	-	-
Welding fumes		-	5	-	-	-	-	-
Soluble salts		-	2	-	-	-	-	-
Alkyls		-	2	-	-	-	-	-
4-Aminodiphenyl	92-67-1	see §12-202-14.1						
2-Aminoethanol		see Ethanolamine						
2-Aminopyridine	504-29-0	0.5	2	2	4	-	-	-
Amitrole	61-82-5	-	0.2	-	-	-	-	-
Ammonia	7664-41-7	25	18	35	27	-	-	-
Ammonium chloride fume	12125-02-9	-	10	-	20	-	-	-
Ammonium sulfamate	7773-06-0							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
n-Amyl acetate	628-63-7	100	525	150	800	-	-	-
sec-Amyl acetate	626-38-0	125	650	150	800	-	-	-
Aniline and homologs	62-53-3	2	8	5	20	-	-	X
Anisidine (o-, p-isomers)	29191-52-4	0.1	0.5	-	-	-	-	X
Antimony and compounds (as Sb)	7440-36-0	-	0.5	-	-	-	-	-
Antimony trioxide	1309-64-4							
Handling and use, as Sb		-	0.5	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
ANTU (Alpha Naphthyl-thiourea)	86-88-4	-	0.3	-	0.9	-	-	-
Arsenic, organic compounds (as As)	7440-38-2	-	0.2	-	-	-	-	-
Arsenic, inorganic compounds, (as As)	7440-38-2	see §12-202-31						
Arsine	7784-42-1	0.05	0.2	-	-	-	-	-
Asbestos	Varies	see §12-206 and 12-145						
Asphalt (petroleum) fumes	8052-42-4	-	5	-	10	-	-	-
Atrazine	1912-24-9	-	5	-	-	-	-	-
Azinphos-methyl	86-50-0	-	0.2	-	0.6	-	-	X
Barium, soluble compounds (as Ba)	7440-39-3	-	0.5	-	-	-	-	-
Barium sulfate	7727-43-7							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Benomyl	17804-35-2							
Total dust		0.8	10	1.3	15	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Benzene; see §12-202-36	71-43-2	See Table 202-2 for operations excluded[e]						
Benzidine	92-87-5	see §12-202-14.1						
p-Benzoquinone		see Quinone						
Benzo(a)pyrene		see Coal tar pitch volatiles						
Benzoyl peroxide	94-36-0	-	5	-	-	-	-	-
Benzyl chloride	100-44-7	1	5	-	-	-	-	-
Beryllium and beryllium compounds (as Be)	7440-41-7	0.002		0.005 (see Table 202-2)		0.025		-
Biphenyl		see Diphenyl						
Bismuth telluride, Undoped	1304-82-1							
Total dust		-	10	-	20	-	-	-
Respirable fraction	-	5	-	-	-	-	-	
Bismuth telluride, Se-doped		-	5	-	10	-	-	-
Borates, tetra, sodium salts								
Anhydrous	1330-43-4	-	1	-	-	-	-	-
Decahydrate	1303-96-4	-	5	-	-	-	-	-
Pentahydrate	12179-04-3	-	1	-	-	-	-	-
Boron oxide	1303-86-2							
total dust		-	10	-	20	-	-	-
Respirable fraction		-	-	-	-	-	-	-
Boron tribromide	10294-33-4	-	-	-	-	1	10	-
Boron trifluoride	7637-07-2	-	-	-	-	1	3	-
Bromacil	314-40-9	1	10	2	20	-	-	-
Bromine	7726-95-6	0.1	0.7	0.3	2	-	-	-
Bromine pentafluoride	7789-30-2	0.1	0.7	0.3	2	-	-	-
Bromoform	75-25-2	0.5	5	-	-	-	-	X
Butadiene (1,3-Butadiene)	106-99-0	see §12-202-40						

TABLE 202-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
Butane	106-97-8	800	1,900	-	-	-	-	-
Butanethiol		see Butyl mercaptan						
2-Butanone (Methyl ethyl ketone)(MEK)	78-93-3	200	590	300	885	-	-	-
2-Butoxyethanol	111-76-2	25	120	75	360	-	-	X
n-Butyl-acetate	123-86-4	150	710	200	950	-	-	-
sec-Butyl acetate	105-46-4	200	950	250	1,190	-	-	-
tert-Butyl acetate	540-88-5	200	950	250	1,190	-	-	-
Butyl acrylate	141-32-2	10	55	-	-	-	-	-
n-Butyl alcohol	71-36-3	-	-	-	-	50	150	X
sec-Butyl alcohol	78-92-2	100	305	150	455	-	-	-
tert-Butyl alcohol	75-65-0	100	300	150	450	-	-	-
Butylamine	109-73-9	-	-	-	-	5	15	X
tert-Butyl chromate (as CrO_3)	1189-85-1	-	-	-	-	-	0.1	X
n-Butyl glycidyl ether (BGE)	2426-08-6	25	135	-	-	-	-	-
n-Butyl lactate	138-22-7	5	25	-	-	-	-	-
Butyl mercaptan	109-79-5	0.5	1.5	-	-	-	-	-
o-sec Butylphenol	89-72-5	5	30	-	-	-	-	X
p-tert-Butyltoluene	98-51-1	10	60	20	120	-	-	-
Cadmium fume (as Cd)	7440-43-9	-	-	-	-	-	0.05	-
Cadmium dust (as Cd)	7440-43-9	-	0.05	-	-	-	0.2	-
Calcium carbonate	1317-65-3							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Calcium cyanamide	156-62-7	-	0.5	-	1	-	-	-
Calcium hydroxide	1305-62-0	-	5	-	-	-	-	-
Calcium oxide	1305-78-8	-	2	-	-	-	-	-
Calcium silicate	1344-95-2							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Calcium sulfate	7778-18-9							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Camphor, synthetic	76-22-2	0.3	2	-	-	-	-	-
Caprolactam	105-60-2							
Dust		-	1	-	3	-	-	-
Vapor & Aerosol		5	20	-	40	-	-	-
Captafol (Difolatan®)	2425-06-1	-	0.1	-	-	-	-	-
Captan	133-06-2	-	5	-	15	-	-	-
Carbaryl (Sevin®)	63-25-2	-	5	-	10	-	-	-
Carbofuran (Furadan®)	1563-66-2	-	0.1	-	-	-	-	-
Carbon black	1333-86-4	-	3.5	-	7	-	-	-
Carbon dioxide	124-38-9	5,000	9,000	15,000	27,000	-	-	-
Carbon disulfide	75-15-0	4	12	12	36	-	-	X
Carbon monoxide	630-08-0	35	40			200	229	-
Carbon tetrabromide	558-13-4	0.1	1.4	0.3	4	-	-	X
Carbon tetrachloride	56-23-5	2	12.6	-	-	-	-	-
Carbonyl fluoride	353-50-4	2	5	5	15	-	-	-
Catechol (Pyrocatechol)	120-80-9	5	20	-	-	-	-	X
Cellulose	9004-34-6							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Cesium hydroxide	21351-79-1	-	2	-	-	-	-	-
Chlordane	57-74-9	-	0.5	-	2	-	-	X
Chlorinated camphene	8001-35-2	-	0.5	-	1	-	-	X

TABLE 2Ø2-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
Chlorinated diphenyl oxide	55720-99-5	-	0.5	-	2	-	-	-
Chlorine	7782-50-5	0.5	1.5	1	3	-	-	-
Chlorine dioxide	10049-04-4	0.1	0.3	0.3	0.9	-	-	-
Chlorine trifluoride	7790-91-2	-	-	-	-	0.1	0.4	-
Chloroacetaldehyde	107-20-0	-	-	-	-	1	3	-
Chloroacetone	78-95-5	-	-	-	-	1	4	X
"-Chloroacetophenone (Phenacyl chloride)	532-27-4	0.05	0.3	-	-	-	-	-
Chloroacetyl chloride	79-04-9	0.05	0.2	-	-	-	-	-
Chlorobenzene (monochlorobenzene)	108-90-7	75	350	-	-	-	-	-
o-Chlorobenzylidene malononitrile	2698-41-1	-	-	-	-	0.05	0.4	X
Chlorobromomethane	74-97-5	200	1,050	250	1,300	-	-	-
2-Chloro-1,3-Butadiene	see $-Chloroprene							
Chlorodifluoromethane	75-45-6	1,000	3,500	1,250	4,375	-	-	-
Chlorodiphenyl (42% chlorine) (PCB)	53469-21-9	-	1	-	2	-	-	X
Chlorodiphenyl (54% Chlorine) (PCB)	11097-69-1	-	0.5	-	1	-	-	X
1-Chloro, 2,3-epoxypropane	see Epichlorohydrin							
2-Chloroethanol	see Ethylene chlorohydrin							
Chloroethylene	see Vinyl chloride							
Chloroform (Trichloromethane)	67-66-3	2	9.78	-	-	-	-	-
bis(Chloromethyl) ether	542-88-1	see §12-202-14.1						
Chloromethyl methyl ether	107-30-2	see §12-202-14.1						
1-Chloro-1-nitropropane	600-25-9	2	10	-	-	-	-	-
Chloropentafluoroethane	76-15-3	1,000	6,320	-	-	-	-	-
Chloropicrin	76-06-2	0.1	0.7	0.3	2	-	-	-
$-Chloroprene	126-99-8	10	35	-	-	-	-	X
o-Chlorostyrene	2039-87-4	50	285	75	428	-	-	-
o-Chlorotoluene	95-49-8	50	250	75	375	-	-	X
2-Chloro-6-(trichloro-methyl) pyridine	1929-82-4							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Chlorpyrifos	2921-88-2	-	0.2	-	0.6	-	-	X
Chromic acid and chromates (as CrO_3)	Varies with compound	-	-	-	-	-	0.1	-
Chromite ore processing (Chromate), (as Cr)		-	0.05	-	-	-	-	-
Chromium (II) compounds (as Cr)	7440-47-3	-	0.5	-	-	-	-	-
Chromium (III) compounds (as Cr)	7440-47-3	-	0.5	-	-	-	-	-

TABLE 2Ø2-1 Limits for Air Contaminants[1] (Continued)

		Air Contaminant Limits**						
		PEL-TWA*		PEL-STEL[a]		PEL-CEILING		Skin
Substance	CAS No.[b]	ppm[c]	mg/m[3d]	ppm[c]	mg/m[3d]	ppm[c]	desig-nation mg/m[3d]	
Chromium (VI) compounds (as Cr) Water soluble & insoluble		-	0.05	-	-	-	-	-
Chromium metal (as Cr)	7440-47-3	-	0.5	-	-	-	-	-
Chromyl chloride	14977-61-8	0.025	0.15	-	-	-	-	-
Chrysene		see Coal tar pitch volatiles						
Clopidol	2971-90-6							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Coal dust (less than 5% SiO_2), Respirable fraction	-		2	-	-	-	-	-
Coal dust (greater than or equal to 5% SiO_2), Respirable quartz fraction	-		0.1	-	-	-	-	-
Coal tar pitch volatiles (benzene soluble fraction), anthracene, BaP, phenanthrene, acridine, chrysene, pyrene	65966-93-2	-	0.2[f]	-	-	-	-	-
Cobalt metal, dust, and fume (as Co)	7440-48-4	-	0.05	-	-	-	-	-
Cobalt carbonyl (as Co)	10210-68-1	-	0.1	-	-	-	-	-
Cobalt hydrocarbonyl (as Co)	16842-03-8	-	0.1	-	-	-	-	-
Coke oven emissions		see §12-202-9						
Copper	7440-50-8							
Fume (as Cu)		-	0.1	-	-	-	-	-
Dusts and mists (as Cu)		-	1	-	2	-	-	-
Cotton dust (raw)		see §12-202-32						
Crag herbicide (Sesone) (Sodium 2,4-dichloro-phenoxyethyl sulfate)	136-78-7							
Total dust		-	10	-	20	-	-	-
Respirable fraction	-	5	-	-	-	-	-	
Cresol, all isomers	1319-77-3	5	22	-	-	-	-	X
Crotonaldehyde	123-73-9 4170-30-3	2	6	6	18	-	-	-
Crufomate	299-86-5	-	5	-	20	-	-	-
Cumene	98-82-8	50	245	75	365	-	-	X
Cyanamide	420-04-2	-	2	-	-	-	-	-
Cyanides (as CN)	Varies with compound	-	5	-	-	-	-	X
Cyanogen	460-19-5	10	20	-	-	-	-	-
Cyanogen chloride	506-77-4	-	-	-	-	0.3	0.6	-
Cyclohexane	110-82-7	300	1,050	375	1,300	-	-	-
Cyclohexanol	108-93-0	50	200	-	-	-	-	X
Cyclohexanone	108-94-1	25	100	100	400	-	-	X
Cyclohexene	110-83-8	300	1,015	-	-	-	-	-
Cyclohexylamine	108-91-8	10	40	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
Cyclonite	121-82-4	-	1.5	-	3	-	-	X
Cyclopentadiene	542-92-7	75	200	75	200	-	-	-
Cyclopentane	287-92-3	600	1,720	900	2,580	-	-	-
Cyhexatin	13121-70-5	-	5	-	10	-	-	-
2,4-D (Dichloryl-phenoxyacetic acid)	94-75-7	-	10	-	20	-	-	-
DDT (Dichlorodiphenyl-trichloroethane)	50-29-3	-	1	-	3	-	-	X
Decaborane	17702-41-9	0.05	0.3	0.15	0.9	-	-	X
Demeton (Systox®)	8065-48-3	-	0.1	0.03	0.3	-	-	X
Diacetone alcohol (4-hydroxy-4-methyl-2-pentanone)	123-42-2	50	240	75	360	-	-	-
1,2-Diaminoethane		see Ethylenediamine						
Diazinon	333-41-5	-	0.1	-	0.3	-	-	X
Diazomethane	334-88-3	0.2	0.4	-	-	-	-	-
Diborane	19287-45-7	0.1	0.1	-	-	-	-	-
1,2-Dibromo-3-chloropropane	96-12-8	see §12-202-29						
2-N-Dibutylamino-ethanol	102-81-8	2	14	4	28	-	-	X
Dibutyl phosphate	107-66-4	1	5	2	10	-	-	-
Dibutyl phthalate	84-74-2	-	5	-	10	-	-	-
Dichloroacetylene	7572-29-4	-	-	-	-	0.1	0.4	-
o-Dichlorobenzene	95-50-1	-	-	-	-	50	300	-
p-Dichlorobenzene	106-46-7	75	450	110	675	-	-	-
3,3'-Dichlorobenzidine	91-94-1	see §12-202-14.1						
Dichlorodifluoromethane	75-71-8	1,000	4,950	1,250	6,200	-	-	-
1,3-Dichloro-5,5-dimethyl hydantoin	118-52-5	-	0.2	-	0.4	-	-	-
1,1-Dichloroethane	75-34-3	100	400	250	1,010	-	-	-
1,2-Dichloroethylene	540-59-0	200	790	250	1,000	-	-	-
Dichloroethyl ether	111-44-4	5	30	10	60	-	-	X
Dichloromethane		see Methylene chloride						
Dichloromonofluoro-methane	75-43-4	10	40	-	-	-	-	-
1,1-Dichloro-1-nitro-ethane	594-72-9	2	10	10	60	-	-	-
1,2-Dichloropropane		see Propylene dichloride						
1,3-Dichloropropene	542-75-6	1	5	-	-	-	-	X
2,2-Dichloropropionic acid	75-99-0	1	6	-	-	-	-	-
Dichlorotetrafluoro-ethane	76-14-2	1,000	7,000	1,250	8,750	-	-	-
Dichlorvos (DDVP)	62-73-7	0.1	1	0.3	3	-	-	X
Dicrotophos	141-66-2	-	0.25	-	-	-	-	X
Dicyclopentadiene	77-73-6	5	30	-	-	-	-	-
Dicyclopentadienyl iron	102-54-5							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Dieldrin	60-57-1	-	0.25	-	0.75	-	-	X
Diethanolamine	111-42-2	3	15	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
Diethylamine	109-89-7	10	30	25	75	-	-	-
2-Diethylaminoethanol	100-37-8	10	50	-	-	-	-	X
Diethylene triamine	111-40-0	1	4	-	-	-	-	-
Diethyl ether		see Ethyl ether						
Diethyl ketone	96-22-0	200	705	-	-	-	-	-
Diethyl phthalate	84-66-2	-	5	-	10	-	-	-
Difluorodibromomethane	75-61-6	100	860	150	1,290	-	-	-
Diglycidyl ether (DGE)	2238-07-5	0.1	0.5	-	-	-	-	-
Dihydroxybenzene		see Hydroquinone						
Diisobutyl ketone	108-83-8	25	150	-	-	-	-	-
Diisopropylamine	108-18-9	5	20	-	-	-	-	X
4-Dimethylaminoazo-benzene	60-11-7	see §12-202-14.1						
Dimethoxymethane		see Methylal						
Dimethyl acetamide	127-19-5	10	35	15	50	-	-	X
Dimethylamine	124-40-3	10	18	10	50	-	-	-
Dimethylaminobenzene		see Xylidine						
Dimethylaniline (N-Dimethyl-aniline	121-69-7	5	25	10	50	-	-	X
Dimethylbenzene		see Xylene						
Dimethyl-1, 2-dibromo-2,2-dichloroethyl phosphate	300-76-5	-	3	-	-	-	-	X
Dimethylformamide	68-12-2	10	30	20	60	-	-	X
2,6-Dimethyl-4-heptanone		see Diisobutyl ketone						
1,1-Dimethylhydrazine	57-14-7	0.5	1	1	2	-	-	X
Dimethylphthalate	131-11-3	-	5	-	10	-	-	-
Dimethyl sulfate	77-78-1	0.1	0.5	-	-	-	-	X
Dinitolmide (3,5-Dinitro-o-toluamide)	148-01-6	-	5	-	10	-	-	-
Dinitrobenzene (all isomers) (alpha-)	528-29-0	0.15	1	0.5	1	-	-	X
(meta-)	99-65-0							
(para-)	100-25-4							
Dinitro-o-cresol	534-52-1	-	0.2	-	0.6	-	-	X
Dinitrotoluene	25321-14-6	-	1.5	-	5	-	-	X
Dioxane (Diethylene dioxide)	123-91-1	25	90	-	-	-	-	X
Dioxathion (Delnav)	78-34-2	-	0.2	-	-	-	-	X
Diphenyl (Biphenyl)	92-52-4	0.2	1.5	0.6	4	-	-	-
Diphenylamine	122-39-4	-	10	-	20	-	-	-
Diphenylmethane diisocyanate		see Methylene bisphenyl isocyanate						
Dipropylene glycol methyl ether	34590-94-8	100	600	150	900	-	-	X
Dipropyl ketone	123-19-3	50	235	-	-	-	-	-
Diquat	85-00-7	-	0.5	-	1	-	-	-

TABLE 202-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING desig-nation mg/m³[d]	Skin
Di-sec-octyl phthalate (Di-2-ethylhexyl-phthalate)	117-81-7	-	5	-	10	-	-	-
Disulfiram	97-77-8	-	2	-	5	-	-	-
Disulfoton	298-04-4	-	0.1	-	0.3	-	-	X
2,6-Di-tert-butyl-p-cresol	128-37-0	-	10	-	20	-	-	-
Diuron	330-54-1	-	10	-	-	-	-	-
Divinyl benzene	1321-74-0	10	50	-	-	-	-	-
Emery	112-62-9							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Endosulfan	115-29-7	-	0.1	-	0.3	-	-	X
Endrin	72-20-8	-	0.1	-	0.3	-	-	X
Epichlorohydrin	106-89-8	2	8	-	-	-	-	X
EPN	2104-64-5	-	0.5	-	2	-	-	X
1,2-Epoxypropane		see Propylene oxide						
2,3-Epoxy-1-propanol		see Glycidol						
Ethanethiol		see Ethyl mercaptan						
Ethanolamine	141-43-5	3	8	6	15	-	-	-
Ethion	563-12-2	-	0.4	-	-	-	-	X
2-Ethoxyethanol	110-80-5	5	19	-	-	-	-	X
2-Ethoxyethyl acetate (Cellosolve acetate)	111-15-9	5	27	-	-	-	-	X
Ethyl acetate	141-78-6	400	1,400	-	-	-	-	-
Ethyl acrylate	140-88-5	5	20	25	100	-	-	X
Ethyl alcohol (Ethanol)	64-17-5	1,000	1,900	-	-	-	-	-
Ethylamine	75-04-7	10	18	-	-	-	-	-
Ethyl amyl ketone (5-Methyl-3-heptanone)	541-85-5	25	130	-	-	-	-	-
Ethyl benzene	100-41-4	100	435	125	545	-	-	-
Ethyl bromide	74-96-4	200	890	250	1,110	-	-	-
Ethyl butyl ketone (3-Heptanone)	106-35-4	50	230	75	345	-	-	-
Ethyl chloride	75-00-3	1,000	2,600	1,250	3,250	-	-	-
Ethyl ether	60-29-7	400	1,200	500	1,500	-	-	-
Ethyl formate	109-94-4	100	300	-	-	-	-	-
Ethyl mercaptan	75-08-1	0.5	1	-	-	-	-	-
Ethyl silicate	78-10-4	10	85	-	-	-	-	-
Ethylene chlorohydrin	107-07-3	-	-	-	-	1	3	X
Ethylenediamine	107-15-3	10	25	-	-	-	-	-
Ethylene dibromide	106-93-4	20	see §12-202-34 See Table 202-2 for operations excluded			30		X
Ethylene dichloride	107-06-2	1	4	2	8	-	-	-
Ethylene glycol, vapor	107-21-1	-	-	-	-	50	125	-
Ethylene glycol dinitrate (EGDN)[1]	628-96-6	0.05	0.3	-	0.1	-	-	X
Ethylene glycol methyl acetate		see Methyl cellosolve acetate						
Ethylene imine	151-56-4	see §12-202-14.1						

TABLE 2Ø2-1 Limits for Air Contaminants[1] (Continued)

		Air Contaminant Limits**						
		PEL-TWA*		PEL-STEL[a]		PEL-CEILING		Skin
Substance	CAS No.[b]	ppm[c]	mg/m[3d]	ppm[c]	mg/m[3d]	ppm[c]	desig-nation mg/m[3d]	
Ethylene oxide	75-21-8	see §12-202-35						
Ethylidene chloride		see 1,1-Dichloroethane						
Ethylidene norbornene	16219-75-3	-	-	-	-	5	25	-
N-Ethylmorpholine	100-74-3	5	23	-	-	-	-	X
Fenamiphos	22224-92-6	-	0.1	-	-	-	-	X
Fensulfothion (Dasanit)	115-90-2	-	0.1	-	-	-	-	-
Fenthion	55-38-9	-	0.2	-	-	-	-	X
Ferbam	14484-64-1							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	-	-	-	-	-	-
Ferrovanadium dust	12604-58-9	-	1	-	3	-	-	-
Fibrous glass dust	-	-	10[h]	-	-	-	-	-
Fluorides (as F)	Varies with compound	-	2.5	-	-	-	-	-
Fluorine	7782-41-4	0.1	0.2	-	-	-	-	-
Fluorotrichloro-methane (Trichloro-fluoromethane)	75-69-4	-	-	-	-	1,000	5,600	-
Fonofos	944-22-9	-	0.1	-	-	-	-	X
Formaldehyde	50-00-0	see §12-202-37						
Formamide	75-12-7	10	15	-	-	-	-	-
Formic acid	64-18-6	5	9	10	18	-	-	-
Furfural	98-01-1	2	8	-	-	-	-	X
Furfuryl alcohol	98-00-0	10	40	15	60	-	-	X
Gasoline	8006-61-9	300	900	-	-	-	-	-
Germanium tetrahydride	7782-65-2	0.2	0.6	0.6	1.8	-	-	-
Glutaraldehyde	111-30-8	-	-	-	-	0.2	0.7	-
Glycerin (mist)	56-81-5							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Glycidol	556-52-5	25	75	-	-	-	-	-
Glycol monoethyl ether	see 2-Ethoxyethanol							
Grain dust (oat, wheat, barley)	-	-	10	-	-	-	-	-
Graphite, natural respirable dust	7782-42-5	-	2.5	-	-	-	-	-
Graphite, synthetic	-							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Guthion[R]	see Azinphos methyl							
Gypsum	13397-24-5							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Hafnium	7440-58-6	-	0.5	-	1.5	-	-	-
Heptachlor	76-44-8	-	0.5	-	2	-	-	X
Heptane (n-Heptane)	142-82-5	400	1,600	500	2,000	-	-	-
Hexachlorobutadiene	87-68-3	0.02	0.24	-	-	-	-	-
Hexachlorocyclo-pentadiene	77-47-4	0.01	0.1	0.03	0.3	-	-	-
Hexachloroethane	67-72-1	1	10	-	-	-	-	X
Hexachloronaphthalene	1335-87-1	-	0.2	-	0.6	-	-	X
Hexafluoroacetone	684-16-2	0.1	0.7	0.3	2	-	-	X

TABLE 2Ø2-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contiminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING desig-nation mg/m³[d]	Skin
n-Hexane	110-54-3	50	180	-	-	-	-	-
Hexane isomers	Varies with compound	500	1,800	-	-	-	-	-
2-Hexanone (Methyl n-butyl ketone)	591-78-6	5	20	-	-	-	-	-
Hexone (Methyl isobutyl ketone	108-10-1	50	205	75	300	-	-	-
sec-Hexyl acetate	108-84-9	50	300	-	-	-	-	-
Hexylene glycol	107-41-5	-	-	-	-	25	125	-
Hydrazine	302-01-2	0.1	0.1	-	-	-	-	X
Hydrogenated terphenyls	61788-32-7	0.5	5	-	-	-	-	-
Hydrogen bromide	10035-10-6	-	-	-	-	3	10	-
Hydrogen chloride	7647-01-0	-	-	-	-	5	7	-
Hydrogen cyanide	74-90-8	-	-	4.7	5	-	-	X
Hydrogen fluoride (as F)	7664-39-3	3	-	6	-	-	-	-
Hydrogen peroxide	7722-84-1	1	1.4	2	3	-	-	-
Hydrogen selenide (as Se)	7783-07-5	0.05	0.2	-	-	-	-	-
Hydrogen sulfide	7783-06-4	10	14	15	21	-	-	-
Hydroquinone	123-31-9	-	2	-	4	-	-	-
2-Hydroxypropyl acrylate	999-61-1	0.5	3	-	-	-	-	X
Indene	95-13-6	10	45	15	70	-	-	-
Indium and compounds (as In)	7440-74-6	-	0.1	-	0.3	-	-	-
Iodine	7553-56-2	-	-	-	-	0.1	1	-
Iodoform	75-47-8	0.6	10	1	20	-	-	-
Iron oxide dust and fume (as Fe)	1309-37-1							
Total particulate		-	5	-	10	-	-	-
Iron pentacarbonyl (as Fe)	13463-40-6	0.1	0.8	0.2	1.6	-	-	-
Iron salts (soluble) (as Fe)	Varies with compound	-	1	-	2	-	-	-
Isoamyl acetate	123-92-2	100	525	125	655	-	-	-
Isoamyl alcohol (primary and secondary)	123-51-3	100	360	125	450	-	-	-
Isobutyl acetate	110-19-0	150	700	187	888	-	-	-
Isobutyl alcohol	78-83-1	50	150	75	225	-	-	-
Isooctyl alcohol	26952-21-6	50	270	-	-	-	-	X
Isophorone	78-59-1	4	23	-	-	5	28	-
Isophorone diiso-cyanate	4098-71-9	0.005	0.045	0.02	-	-	-	X
2-Isopropoxyethanol	109-59-1	25	105	75	320	-	-	-
Isopropyl acetate	108-21-4	250	950	310	1,185	-	-	-
Isopropyl alcohol	67-63-0	400	980	500	1,225	-	-	-
Isopropylamine	75-31-0	5	12	10	24	-	-	-
N-Isopropylaniline	768-52-5	2	10	-	-	-	-	X
Isopropyl ether	108-20-3	250	1,050	310	1,320	-	-	-
Isopropyl glycidyl ether (IGE)	4016-14-2	50	240	75	360	-	-	-
Kaolin	-							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
Ketene	463-51-4	0.5	0.9	1.5	3	-	-	-
Lead chromate, as Cr	7758-97-6	-	0.05	-	-	-	-	-
Lead inorganic (as Pb)	7439-92-1	see §12-202-33.1 and 12-148.1						
Limestone	1317-65-3							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Lindane	58-89-9	-	0.5	-	1.5	-	-	X
Lithium hydride	7580-67-8	-	0.025	-	-	-	-	-
L.P.G. (Liquefied petroleum gas)	68476-85-7	1,000	1,800	1,250	2,250	-	-	-
Magnesite	546-93-0							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Magnesium oxide fume	1309-48-4							
Total particulate		-	10	-	-	-	-	-
Malathion	121-75-5							
Total dust		-	10	-	-	-	-	X
Maleic anhydride	108-31-6	0.25	1	-	-	-	-	-
Manganese compounds (as Mn)	7439-96-5	-	-	-	-	-	5	-
Manganese fume (as Mn)	7439-96-5	-	1	-	3	-	-	-
Manganese cyclopentadienyl tricarbonyl (as Mn)	12079-65-1	-	0.1	-	0.3	-	-	X
Manganese tetroxide (as Mn)	1317-35-7	-	1	-	-	-	-	-
Marble (Calcium carbonate)	1317-65-3							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Mercury (aryl and inorganic) (as Hg)	7439-97-6	-	-	-	-	-	0.1	X
Mercury (organo) alkyl compounds (as Hg)	7439-97-6	-	0.01	-	0.03	-	-	X
Mercury (vapor) (as Hg)	7439-97-6	-	0.05	-	-	-	-	X
Mesityl oxide	141-79-7	15	60	25	100	-	-	-
Methacrylic acid	79-41-4	20	70	-	-	-	-	X
Methanethiol		see Methyl mercaptan						
Methomyl (Lannate)	16752-77-5	-	2.5	-	-	-	-	-
Methoxychlor	72-43-5							
Total dust		-	10	-	-	-	-	-
2-Methoxyethanol	150-76-5	see Methyl cellosolve						
4-Methoxyphenol								
Methyl acetate	79-20-9	200	610	250	760	-	-	-
Methyl acetylene (Propyne)	74-99-7	1,000	1,650	1,250	2,040	-	-	-
Methyl acetylene-propadiene mixture (MAPP)	-	1,000	1,800	1,250	2,250	-	-	-
Methyl acrylate	96-33-3	10	35	-	-	-	-	X
Methylacrylonitrile	126-98-7	1	3	2	6	-	-	X

TABLE 2Ø2-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
Methylal (Dimethoxy-methane)	109-87-5	1,000	3,100	1,250	3,875	-	-	-
Methyl alcohol (methanol)	67-56-1	200	260	250	325	-	-	X
Methylamine	74-89-5	10	12	-	-	-	-	-
Methyl amyl alcohol		see Methyl isobutyl carbinol						
Methyl n-amyl ketone	110-43-0	50	235	-	-	-	-	-
N-Methyl aniline	100-61-8	0.5	2	1	5	-	-	X
Methyl bromide	74-83-9	5	20	15	60	-	-	X
Methyl n-butyl ketone		see 2-Hexanone						
Methyl cellosolve (2-Methoxyethanol)	109-86-4	5	16	-	-	-	-	X
Methyl cellosolve acetate (2-Methoxyethyl acetate)	110-49-6	5	24	-	-	-	-	X
Methyl chloride	74-87-3	50	105	106	205	200	-	-
Methyl chloroform (1,1,1-Trichloro-ethane)	71-55-6	350	1,900	450	2,450	-	-	-
Methyl 2-cyanoacrylate	137-05-3	2	8	4	16	-	-	-
Methylcyclohexane	108-87-2	400	1,600	500	2,000	-	-	-
Methylcyclohexanol	25639-42-3	50	235	75	350	-	-	-
o-Methylcyclohexanone	538-60-8	50	230	75	345	-	-	X
2-Methylcyclo-pentadienyl manganese tricarbonyl (as Mn)	12108-13-3	-	0.2	-	0.6	-	-	X
Methyl demeton	8022-00-2	-	0.5	-	1.5	-	-	X
4,4'-Methylene bis (2-chloroaniline) (MBOCA)	101-14-4	0.02	0.22	-	-	-	-	X
Methylene bis (4-cyclohexyliso-cyanate)	5124-30-1	-	-	-	-	0.01	0.11	-
Methylene chloride	75-09-2	see §12-202-41						
4,4'-Methylene dianiline;	101-77-9	see §12-202-38 and 12-146						
Methyl ethyl ketone (MEK)		see 2-Butanone						
Methyl ethyl ketone peroxide (MEKP)	1338-23-4	-	-	-	-	0.2	1.5	-
Methyl formate	107-31-3	100	250	150	375	-	-	-
Methyl hydrazine (Mono-methyl hydrazine	60-34-4	-	-	-	-	0.2	0.35	X
Methyl iodide	74-88-4	2	10	-	-	-	-	X
Methyl isoamyl ketone	110-12-3	50	240	-	-	-	-	-
Methyl isobutyl carbinol	108-11-2	25	100	-	-	-	-	X
Methyl isobutyl ketone		see Hexone						
Methyl isocyanate	624-83-9	0.02	0.05	-	-	-	-	X
Methyl isopropyl ketone	563-80-4	200	705	-	-	-	-	-

TABLE 2Ø2-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
Methyl mercaptan	74-93-1	0.5	1	-	-	-	-	-
Methyl methacrylate	80-62-6	100	410	-	-	-	-	-
Methyl parathion	298-00-0	-	0.2	-	0.6	-	-	X
Methyl propyl ketone		see 2-Pentanone						
Methyl silicate	681-84-5	1	6	-	-	-	-	-
"-Methyl styrene	98-83-9	50	240	100	485	-	-	-
Methylene bisphenyl isocyanate (MDI)	101-68-8	-	-	-	-	0.02	0.2	-
Metribuzin	21087-64-9	-	5	-	-	-	-	-
Mevinphos[R]		see Phosdrin						
Mica		see Silicates						
Molybdenum (as Mo)	7439-98-7							
Soluble compounds		-	5	-	10	-	-	-
Insoluble compounds								
Total dust		-	10	-	20	-	-	-
Monocrotophos (Azodrin[R])	6923-22-4	-	0.25	-	-	-	-	-
Monomethyl aniline (N-Methylaniline)	100-61-8	0.5	2	-	-	-	-	X
Morpholine	110-91-8	20	70	30	105	-	-	X
Naled	300-76-5	-	3	-	6	-	-	X
Naphtha (Coal tar)	8030-30-6	100	400	-	-	-	-	-
Naphthalene	91-20-3	10	50	15	75	-	-	-
"-Naphthylamine	134-32-7	see §12-202-14.1						
$-naphthylamine	91-59-8	see §12-202-14.1						
Nickel carbonyl (as Ni)	13463-39-3	0.001	0.007	-	-	-	-	-
Nickel, metal and insoluble compounds (as Ni)	7440-02-0	-	1	-	-	-	-	-
Nickel, soluble compounds (as Ni)	7440-02-0	-	0.1	-	0.3	-	-	-
Nickel sulfide roasting, fume & dust, (as Ni)	-	-	1	-	-	-	-	-
Nicotine	54-11-5	-	0.5	-	1.5	-	-	X
Nitrapyrin	1929-82-4	-	10	-	20	-	-	-
Nitric acid	7697-37-2	2	5	4	10	-	-	-
Nitric oxide	10102-43-9	25	30	35	45	-	-	-
p-Nitroaniline	100-01-6	-	3	-	-	-	-	X
Nitrobenzene	98-95-3	1	5	2	10	-	-	X
p-Nitrochlorobenzene	100-00-5	0.1	0.6	-	-	-	-	X
4-Nitrodiphenyl	92-93-3	see §12-202-14.1						
Nitroethane	79-24-3	100	310	150	465	-	-	-
Nitrogen dioxide	10102-44-0	3	6	5	9.4	-	-	-
Nitrogen trifuoride	7783-54-2	10	29	15	45	-	-	-
Nitroglycerin (NG)[†]	55-63-0	-	-	-	0.1	-	-	X
Nitromethane	75-52-5	100	250	150	375	-	-	-
1-Nitropropane	108-03-2	25	90	35	135	-	-	-
2-Nitropropane	79-46-9	10	35	-	-	-	-	-
N-Nitrosodi-methylamine	62-79-9	see §12-202-14.1						

TABLE 2Ø2-1 Limits for Air Contaminants[1] (Continued)

		Air Contaminant Limits**						
		PEL-TWA*		PEL-STEL[a]		PEL-CEILING		Skin
Substance	CAS No.[b]	ppm[c]	mg/m³[d]	ppm[c]	mg/m³[d]	ppm[c]	desig-nation mg/m³[d]	
Nitrotoluene								
o-isomer	88-72-2;	2	11	-	-	-	-	X
m-isomer	99-08-1;	2	11	-	-	-	-	X
p-isomer	99-99-0	2	11	-	-	-	-	X
Nitrotrichloromethane		see Chloropicrin						
Nitrous oxide	10024-97-2	50	91	-	-	-	-	-
Nonane	111-84-2	200	1,050	250	1,300	-	-	-
Octachloronaphthalene	2234-13-1	-	0.1	-	0.3	-	-	X
Octane	111-65-9	300	1,450	375	1,800	-	-	-
Oil mist, mineral	8012-95-1	-	5[i]	-	10[i]	-	-	-
Osmium tetroxide (as Os)	20816-12-0	0.0002	0.002	0.0006	0.006	-	-	-
Oxalic acid	144-62-7	-	1	-	2	-	-	-
Oxygen difluoride	7783-41-7	-	-	-	-	0.05	0.11	-
Ozone	10028-15-6	0.1	0.2	0.3	0.6	-	-	-
Paraffin wax fume	8002-74-2	-	2	-	6	-	-	-
Paraquat, respirable dust	1910-42-5	-	0.1	-	-	-	-	X
	2074-50-2	-	0.1	-	-	-	-	X
	4685-14-7	-	0.1	-	-	-	-	X
Parathion	56-38-2	-	0.1	-	0.3	-	-	X
Particulates not other wise regulated	-							
Total dust	-	-	10	-	-	-	-	-
Respirable fraction	-	-	5	-	-	-	-	-
Pentaborane	19624-22-7	0.005	0.01	0.015	0.03	-	-	-
Pentachloronaphthalene	1321-64-8	-	0.5	-	2	-	-	X
Pentachlorophenol	87-86-5	-	0.5	-	1.5	-	-	X
Pentaerythritol	115-77-5							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Pentane	109-66-0	600	1,800	750	2,250	-	-	-
2-Pentanone (Methyl propyl ketone)	107-87-9	200	700	250	875	-	-	-
Perchloroethylene (Tetrachloro-ethylene)	127-18-4	25	170	200	1,340	-	-	-
Perchloromethyl mercaptan	594-42-3	0.1	0.8	-	-	-	-	-
Perchloryl fluoride	7616-94-6	3	14	6	28	-	-	-
Perlite	-							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Petroleum distillates (Naphtha)	8002-05-9	400	1,600	-	-	-	-	-
Phenol	108-95-2	5	19	10	38	-	-	X
Phenothiazine	92-84-2	-	5	-	10	-	-	X
p-Phenylene diamine	106-50-3	-	0.1	-	-	-	-	X
Phenyl ether, vapor	101-84-8	1	7	2	14	-	-	-
Phenyl ether-biphenyl mixture, vapor	-	1	7	-	-	-	-	-
Phenylethylene		see Styrene						
Phenyl glycidyl ether (PGE)	122-60-1	1	6	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
Phenylhydrazine	100-63-0	5	20	10	45	-	-	X
Phenyl mercaptan	108-98-5	0.5	2	-	-	-	-	-
Phenylphosphine	638-21-1	-	-	-	-	0.05	0.25	-
Phorate	298-02-2	-	0.05	-	0.2	-	-	X
Phosdrin (Mevinphos®)	7786-34-7	0.01	0.1	0.03	0.3	-	-	X
Phosgene (Carbonyl chloride)	75-44-5	0.1	0.4	-	-	-	-	-
Phosphine	7803-51-2	0.3	0.4	1	1.4	-	-	-
Phosphoric acid	7664-38-2	-	1	-	3	-	-	-
Phosphorus (yellow)	7723-14-0	-	0.1	-	0.3	-	-	-
Phosphorus oxychloride	10025-87-3	0.1	0.6	0.5	3	-	-	-
Phosphorus pentachloride	10026-13-8	-	1	-	3	-	-	-
Phosphorus pentasulfide	1314-80-3	-	1	-	3	-	-	-
Phosphorus trichloride	7719-12-2	0.2	1.5	0.5	3	-	-	-
Phthalic anhydride	85-44-9	1	6	-	-	-	-	-
m-Phthalodinitrile	626-17-5	-	5	-	-	-	-	-
Picloram	1918-02-1							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Picric acid	88-89-1	-	0.1	-	0.3	-	-	X
Pindone (2-Pivalyl-1,3-indandione)	83-26-1	-	0.1	-	0.3	-	-	-
Piperazine dihydrochloride	142-64-3	-	5	-	-	-	-	-
Plaster of Paris	26499-65-0							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Platinum (as Pt)	7440-06-4							
Metal		-	1	-	-	-	-	-
Soluble salts		-	0.002	-	-	-	-	-
Portland cement	65997-15-1							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Potassium hydroxide	1310-58-3	-	-	-	-	-	2	-
Propane	74-98-6	1,000	1,800	-	-	-	-	-
Propargyl alcohol	107-19-7	1	2	3	6	-	-	X
$-Propriolactone	57-57-8	see §12-202-14.1						
Propionic acid	79-09-4	10	30	15	45	-	-	-
Propoxur (Baygon)	114-26-1	-	0.5	-	2	-	-	-
n-Propyl acetate	109-60-4	200	840	250	1,050	-	-	-
n-Propyl alcohol	71-23-8	200	500	250	625	-	-	X
n-Propyl Nitrate	627-13-4	25	105	40	170	-	-	-
Propylene dichloride	78-87-5	75	350	110	510	-	-	-
Propylene glycol dinitrate (PGDN)	6423-43-4	0.05	0.3	0.1	0.6	-	-	X
Propylene glycol monomethyl ether	107-98-2	100	360	150	540	-	-	-
Propylene imine	75-55-8	2	5	-	-	-	-	X
Propylene oxide	75-56-9	20	50	-	-	-	-	-
n-Propyl nitrate	627-13-4	25	105	40	170	-	-	-
Propyne		see Methyl acetylene						
Pyrethrum	8003-34-7	-	5	-	10	-	-	-
Pyridine	110-86-1	5	15	10	30	-	-	-
Quinone	106-51-4	0.1	0.4	0.3	1	-	-	-

TABLE 202-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING mg/m³[d]	Skin designation
Resorcinol	108-46-3	10	45	20	90	-	-	-
Rhodium (as Rh), metal fume and insoluble compounds	7440-16-6	-	0.1	-	-	-	-	-
Rhodium (as Rh), soluble compounds	7440-16-6	-	0.001	-	-	-	-	-
Ronnel	299-84-3	-	10	-	-	-	-	-
Rosin core solder pyrolysis products, as formaldehyde	-	-	0.1	-	0.3	-	-	-
Rotenone (commercial)	83-79-4	-	5	-	10	-	-	-
Rouge	-							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Rubber solvent (Naphtha)	-	400	1,600	-	-	-	-	-
Selenium compounds (as Se)	7782-49-2	-	0.2	-	-	-	-	-
Selenium hexafluoride (as Se)	7783-79-1	0.05	0.2	-	-	-	-	-
Sesone (Sodium 2,4-dichloro-phenoxy-ethyl sulfate)		see Crag herbicide						
Silane		see Silicone tetrahydride						
Silica, amorphous, precipitated and gel	-	-	6	-	-	-	-	-
Silica, amorphous, diatomaceous earth containing less than 1% crystalline silica	61790-53-2	-	6	-	-	-	-	-
Silica, crystalline cristobalite (as quartz), respirable dust	14464-46-1	-	0.05	-	-	-	-	-
Silica, crystalline quartz (as quartz), respirable dust	14808-60-7	-	0.1	-	-	-	-	-
Silica, crystalline tripoli (as quartz), respirable dust	1317-95-9	-	0.1	-	-	-	-	-
Silica, crystalline tridymite (as quartz), respirable dust	15468-32-3	-	0.05	-	-	-	-	-
Silica, fused, respirable dust	60676-86-0	-	0.1	-	-	-	-	-

TABLE 202-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
Silicates (less than 1% crystalline silica)								
Mica (respirable dust	12001-26-2	-	3	-	-	-	-	-
Soapstone, total dust	-	-	6	-	-	-	-	-
Soapstone, respirable dust	-	-	3	-	-	-	-	-
Talc (containing asbestos): use asbestos limit	-	see §12-202-13						
Talc (containing no asbestos), respirable dust	14807-96-6	-	2	-	-	-	-	-
Tremolite		see §12-202-13						
Silicon	7440-21-3							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Silicon carbide	409-21-2							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Silicon tetrahydride (Silane)	7803-62-5	5	7	-	-	-	-	-
Silver, metal and soluble compounds (as Ag)	7440-22-4	-	0.01	-	-	-	-	-
Soapstone		see Silicates						
Sodium azide	26628-22-8							
(as HN_3)		-	-	-	-	0.1	-	X
(as NaN_3)		-	-	-	-	-	0.3	X
Sodium bisulfite	7631-90-5	-	5	-	-	-	-	-
Sodium 2,4-dichloro-phenoxyethyl sulfate		see Crag herbicide (see sessone)						
Sodium fluoroacetate	62-74-8	-	0.05	-	0.15	-	-	X
Sodium hydroxide	1310-73-2	-	-	-	-	-	2	-
Sodium metabisulfite	7681-57-4	-	5	-	-	-	-	-
Starch	9005-25-8							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Stibine	7803-52-3	0.1	0.5	0.3	1.5	-	-	-
Stoddard solvent	8052-41-3	100	525	-	-	-	-	-
Strychnine	57-24-9	-	0.15	-	0.45	-	-	-
Styrene, monomer	100-42-5	50	215	100	425	-	-	-
Subtilisins (Proteolytic enzymes)	9014-01-1	-	-	-	0.00006 (60 min)[j]	-	-	
Sucrose	57-50-1							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Sulfotep;		see TEDP						
Sulfur dioxide	7446-09-5	2	5	5	10	-	-	-
Sulfur hexafluoride	2551-62-4	1,000	6,000	1,250	7,500	-	-	-

TABLE 2Ø2-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING desig-nation mg/m³[d]	Skin
Sulfuric acid	7664-93-9	-	1	-	3	-	-	-
Sulfur monochloride	10025-67-9	-	-	3	18	1	6	-
Sulfur pentafluoride	5714-22-7	-	-	0.075	0.75	0.01	0.1	-
Sulfur tetrafluoride	7783-60-0	-	-	0.3	1	0.1	0.4	-
Sulfuryl fluoride	2699-79-8	5	20	10	40	-	-	-
Sulprofos	35400-43-2	-	1	-	-	-	-	-
Systox[R]		see Demeton						
2,4,5-T		see Silicates						
Talc								
Tantalum, metal and oxide dust	7440-25-7	-	5	-	10	-	-	-
TEDP (Sulfotep)	3689-24-5	-	0.2	-	0.6	-	-	X
Tellurium and compounds (as Te)	13494-80-9	-	0.1	-	-	-	-	-
Tellurium hexafluoride (as Te)	7783-80-4	0.02	0.2	-	-	-	-	-
Temephos	3383-96-8							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
TEPP	107-49-3	0.004	0.05	0.01	0.2	-	-	X
Terphenyls	26140-60-3	-	-	-	-	0.5	5	-
1,1,1,2-Tetrachloro-2,2-difluoroethane	76-11-9	500	4,170	625	5,210	-	-	-
1,1,2,2-Tetrachloro-1,2-difluoroethane	76-12-0	500	4,170	625	5,210	-	-	-
1,1,2,2-Tetrachloro-ethane	79-34-5	1	7	-	-	-	-	X
Tetrachoroethylene		see Perchloroethylene						
Tetrachloromethane		see Carbon tetrachloride						
Tetrachloronaphthalene	1335-88-2	-	2	-	4	-	-	X
Tetraethyl lead (as Pb)	78-00-2	-	0.075[k]	-	0.3[k]	-	-	X
Tetrahydrofuran	109-99-9	200	590	250	735	-	-	-
Tetramethyl lead, (as Pb)	75-74-1	-	0.075[k]	-	0.5[k]	-	-	X
Tetramethyl succino-nitrile	3333-52-6	0.5	3	2	9	-	-	X
Tetranitromethane	509-14-8	1	8	-	-	-	-	-
Tetrasodium pyro-phosphate	7722-88-5	-	5	-	-	-	-	-
Tetryl (2,4,6-Trinitrophenyl-methyl-nitramine)	479-45-8	-	1.5	-	-	-	-	X
Thallium, soluble compounds (as Tl)	7440-28-0	-	0.1	-	-	-	-	X
4,4'-Thiobis (6-tert, butyl-m-cresol)	96-69-5							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Thioglycolic acid	68-11-1	1	4	-	-	-	-	X
Thionyl chloride	7719-09-7	-	-	-	-	1	5	-
Thiram	137-26-8	-	1	-	-	-	-	-

TABLE 2Ø2-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING desig-nation mg/m³[d]	Skin
Tin, inorganic compounds (except oxides) (as Sn)	7440-31-5	-	2	-	4	-	-	-
Tin, organic compounds (as Sn)	7440-31-5	-	0.1	-	0.2	-	-	X
Tin oxide (as Sn)	21651-19-4	-	2	-	4	-	-	-
Titanium dioxide	13463-67-7							
Total dust		-	10	-	20	-	-	-
Toluene (Toluol)	108-88-3	100	375	150	560	-	-	X
Toluene di-isocyanate (TDI)	584-84-9	0.005	0.04	0.02	0.15	-	-	-
m-Toluidine	108-44-1	2	9	-	-	-	-	X
o-Toluidine	95-53-4	5	22	-	-	-	-	X
p-Toluidine	106-49-0	2	9	-	-	-	-	X
Toxaphene		see Chlorinated camphene						
Tremolite		see Silicates						
Tributyl phosphate	126-73-8	0.2	2.5	0.4	5	-	-	-
Trichloroacetic acid	76-03-9	1	5	-	-	-	-	-
1,2,4-Trichlorobenzene	120-82-1	-	-	-	-	5	40	-
1,1,1-Trichloroethane		see Methyl chloroform						
1,1,2-Trichloroethane	79-00-5	10	45	20	90	-	-	X
Trichloroethylene	79-01-6	50	270	200	1,080	-	-	-
Trichloromethane		see Chloroform						
Trichloronaphthalene	1321-65-9	-	5	-	10	-	-	X
1,2,3-Trichloropropane	96-18-4	10	60	75	450	-	-	X
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	1,000	7,600	1,250	9,500	-	-	-
Triethylamine	121-44-8	10	40	15	60	-	-	-
Trifluorobromomethane	75-63-8	1,000	6,100	1,200	7,300	-	-	-
Trimellitic anhydride	552-30-7	0.005	0.04	-	-	-	-	-
Trimethylamine	75-50-3	10	24	15	36	-	-	-
Trimethyl benzene	25551-13-7	25	125	35	170	-	-	-
Trimethyl phosphite	121-45-9	2	10	5	25	-	-	-
2,4,6-Trinitrophenyl		see Picric acid						
2,4,6-Trinitrophenyl-methyl nitramine		see Tetryl						
2,4,6-Trinitrotoluene (TNT)	118-96-7	-	0.5	-	-	-	-	X
Triorthocresyl phosphate	78-30-8	-	0.1	-	-	-	-	X
Triphenyl amine	603-34-9	-	5	-	-	-	-	-
Triphenyl phosphate	115-86-6	-	3	-	6	-	-	X
Tungsten (as W)	7440-33-7							
Insoluble compounds		-	5	-	10	-	-	-
Soluble compounds		-	1	-	3	-	-	-
Turpentine	8006-64-2	100	560	150	840	-	-	-
Uranium (as U)	7440-61-1							
Soluble compounds		-	0.05	-	-	-	-	-
Insoluble compounds		-	0.2	-	0.6	-	-	-
n-Valeraldehyde	110-62-3	50	175	-	-	-	-	-

TABLE 2Ø2-1 Limits for Air Contaminants[1] (Continued)

Substance	CAS No.[b]	Air Contaminant Limits** PEL-TWA* ppm[c]	PEL-TWA* mg/m³[d]	PEL-STEL[a] ppm[c]	PEL-STEL[a] mg/m³[d]	PEL-CEILING ppm[c]	PEL-CEILING designation mg/m³[d]	Skin
Vanadium	1314-62-1							
Respirable dust (as V_2O_5)		-	0.05	-	-	-	-	-
Fume (as V_2O_5)		-	0.05	-	-	-	-	-
Vegetable oil mist	-							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Vinyl acetate	108-05-4	10	30	20	60	-	-	-
Vinyl benzene		see Styrene						
Vinyl bromide	593-60-2	5	20	-	-	-	-	-
Vinyl chloride	75-01-4	see §12-202-28						
Vinylcyanide		see Acrylonitrile						
Vinyl cyclohexene dioxide	106-87-6	10	60	-	-	-	-	X
Vinylidene chloride (1,1-Dichloro-ethylene)	75-35-4	1	4	-	-	-	-	-
Vinyl toluene	25013-15-4	50	240	100	485	-	-	-
VM & P Naphtha	8032-32-4	300	1,350	400	1,800	-	-	-
Warfarin	81-81-2	-	0.1	-	0.3	-	-	-
Welding fumes (total particulate)	-	-	5	-	-	-	-	-
Wood dust:								
Certain hardwoods as beech & oak	-	-	1	-	-	-	-	-
All soft woods, (except Western red cedar)	-	-	5	-	10	-	-	-
Wood dust, Western red cedar	-	-	2.5	-	-	-	-	-
Xylenes (o-, m-, p-isomers	1330-20-7	100	435	150	655	-	-	X
m-Xylene ", "'-diamine	1477-55-0	-	-	-	-	-	0.1	X
Xylidine	1300-73-8	0.5	2.5	-		-	-	X
Yttrium	7440-65-5	-	1	-	3	-	-	-
Zinc chloride fume	7646-85-7	-	1	-	2	-	-	-
Zinc chromate (as CrO_3)	Varies with Compound	-	0.01	-	-	-	0.1	-
Zinc oxide fume	1314-13-2	-	5	-	10	-	-	-
Zinc oxide	1314-13-2							
Total dust		-	10	-	-	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Zinc stearate	557-05-1							
Total dust		-	10	-	20	-	-	-
Respirable fraction		-	5	-	-	-	-	-
Zirconium compounds (as Zr)	7440-67-2	-	5	-	10	-	-	-

Footnotes to Table 202-1:

Air Contaminant Rule Limits are the most restrictive of the federal limits, ACGIH limits and existing DOSH limits.

* The PEL-TWA's are 7- to 8-hour TWA's, unless otherwise noted.

** Unless otherwise noted, employers in General Industry (i.e., those covered by Part 2 of the DOSH standards) may use any combination of controls to achieve these limits, until December 31, 1992.

a. STEL duration is for 15 minutes, unless otherwise noted.

b. The CAS number is for information only. Enforcement is based on the substance name. For an entry covering more than one metal compound measured as the metal, the CAS number for the metal is given--not the CAS numbers for the individual compounds.

c. Ppm are in parts of vapor or gas per million parts of contaminated air by volume at 25°C and 760 torr.

d. Mg/m^3 are approximate milligrams of substance per cubic meter of air.

e. The final benzene standard in section 12-202-36 applies to all occupational exposures to benzene except some subsegments of industry where exposures are consistently under the action level (e.g., distribution and sale of fuels, sealed containers and pipelines, coke production, oil and gas drilling and production, natural gas processing, and the percentage exclusion for liquid mixtures); for the excepted subsegments, the benzene limits in Table 202-2 apply.

f. Coal tar pitch volatiles mean the fused polycyclic hydrocarbons which volatilize from the distillation residues of coal, petroleum, (excluding asphalt, CAS 8052-42-4 and CAS 64742-93-4), wood, and other organic matter.

g. Cotton dust refers to lint-free dust as measured by the vertical elutriator, cotton-dust sampler described in the Transactions of the National Conference on Dust, p. 33 by J.R. Lynch, (May 2, 1970). The PEL-TWA in the table applies to respirable dust as measured by a vertical elutriator cotton dust sampler or equivalent instrument. The time-weighted average applies to the cotton waste processing operations of waste cycling (sorting, blending, cleaning, and willowing) and garreting. See also section 12-202-32.

h. Fibrous glass dust means particles <7:m in diameter.

i. Oil mist as sampled by a method that does not collect vapor.

j. Compliance with the Subtilisins PEL-TWA is assessed by sampling with a high volume sampler (600-800 liters per minute) for at least 60 minutes.

k. For control of tetraethyl lead and tetramethyl lead in general room air, biologic monitoring is essential for personnel monitoring.

1. Most Occupational exposures to EGDN actually involve mixtures of EGDN and nitroglycerin (NG). This EGDN:NG mixture has a PEL-STEL of 0.1 mg/m^3.

TABLE 202-2

Material	Industry Segments	Skin Design-nation	8-hour time-weighted average	Ceiling concentra-tion
Benzene	(Z37.40-1969)[1]	-	10 ppm	25 ppm
Beryllium and Beryllium compounds	(Z37.29-1970)	-	2 :g/m^3	5 :g/m^3
Ethylene dibromide	(Z37.31-1970)	X	20 ppm	30 ppm
Methyl chloride	(Z37.18-1969)	-	100 ppm	200 ppm

[1]This standard applies to the industry segments exempt from the 1 ppm 8-hour TWA and 5 ppm STEL of the benzene standard at section 12-202-36 This standard also applies to any industry for which section 12-202-36 is stayed or otherwise not in effect. [Eff 3/22/91; am 6/8/92; am 5/2/97; am 4/11/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-5 Exposure for less than 7-8 hours. REPEALED. [Eff. 7/12/82; am 6/16/84; am 8/5/88; R 3/22/91] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-6 Exposure for more than 8 hours. (a) The permissible exposure limit to hazardous substances described or listed in this chapter for shifts greater than 8 hours shall be the PEL for greater-than-8-hour exposure.

(b) This formula shall be used to compute the TWA for greater-than-8-hour exposure:

TWA = ppm-hours/total hours exposed.

For example, suppose an employee was exposed to 9.3 ppm-hours of chlorine over a 10-hour span. Then:

TWA = 9.3 ppm-hours/10.0 hours = 0.93 ppm.

However, this TWA cannot be compared to the PEL-TWA in table 202-1 to determine whether the PEL-TWA has been exceeded.

(c) A substance greater-than-8-hours-exposure PEL shall be computed from the following general formula:

substance >8 hour PEL = maximum concentration-hours/total hours exposure.

(1) Since the maximum concentration-hours (in either ppm-hours or mg/m^3-hours) is calculated from the appropriate substance PEL-TWA of table 202-1 multiplied by 8 hours, the above formula is equivalent to the following formula:

substance >8 hour PEL = PEL-TWA (table 202-1) x 8 hours/total hours exposure.

(2) In the chlorine example above, therefore, where the chlorine PEL-TWA in table 202-1 is 0.5 ppm, the chlorine 10-hour exposure PEL is calculated in ppm as follows:

chlorine 10-hour PEL = 0.5 ppm x 8 hours/10.0 hours
= 4 ppm-hours/10.0 hours
= 0.4 ppm;

similarly, for example, note that (in ppm) the:
chlorine 12-hour PEL = 0.33 ppm; and
chlorine 20-hour PEL = 0.2 ppm.

The chlorine 10-hour TWA (i.e., 0.93 ppm, computed in subsection (b) above) is greater than the chlorine 10-hour PEL of 0.4 ppm; therefore, the employee was exposed to an unacceptable level of chlorine. [Eff. 7/12/82; am 6/16/84; am 3/22/91] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-7 Short-term limits (STLs). REPEALED. [Eff. 7/12/82; R 6/16/84] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-7.01 Short-term exposure levels (STELs). REPEALED. [Eff. 7/12/82; am 6/16/84; am 8/5/88; R 3/22/91] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-8 REPEALED. [Eff 7/12/82; am 6/16/84; am 3/22/91; am 6/8/92; am 7/6/99; R 12/29/00] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-9 REPEALED. [Eff. 7/12/82; am 5/28/83; am 6/16/84; am 8/5/88; am 3/22/91; am 4/11/98; R 12/29/00] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-10 REPEALED. [Eff. 7/12/82; am 6/16/84; am 8/5/88; am 3/22/91; R 12/29/00] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-11 REPEALED. [Eff. 7/12/82; am 6/16/84; am 8/5/88; am 3/22/91; R 12/29/00] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-12 Achieving compliance. To achieve compliance within the limits prescribed in this chapter, administrative or engineering controls must first be determined and implemented whenever feasible. When those controls are not feasible to achieve full compliance, protective equipment or any other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed in this chapter. Any equipment and technical measure used for this purpose must be approved for each particular use by a competent industrial hygienist or another technically qualified person. Whenever respirators are used, their use shall comply with chapter 12-64. [Eff. 7/12/82] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-13 REPEALED. [Eff 7/12/82; am 12/4/83; am 6/16/84; am 8/5/88; am 3/22/91; am 12/5/92; R 8/10/95]

§12-202-14 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-14.1 13 Carcinogens (4-Nitrobiphenyl, etc). (a) Incorporation of federal standard. Title 29, Code of Federal Regulations, section 1910.1003, entitled "13 Carcinogens (4- Nitrobiphenyl, etc)", published by the Office of the Federal Register, National Archives and Records Administration published on March 7, 1996, and the amendments published on June 20, 1996; January 8, 1998; and April 23, 1998, are made a part of this section, except as provided in subsection (b).

§12-202-15 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-16 REPEALED. [Eff 7/12/82; R 2/14/00] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-17 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-18 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-19 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-20 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-21 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-22 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-23 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-24 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-25 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-26 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-27 REPEALED. [Eff 7/12/82; R 11/16/96] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-28 REPEALED. [Eff 7/12/82; R 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-28.1 Vinyl Chloride. (a) Incorporation of federal standard. Title 29 Code of Federal Regulations, section 1910.1017, entitled "Vinyl Chloride" published by the Office of the Federal Register, National Archives and Records Administration on October 4, 1974; and the amendments published on December 3, 1974; March 25, 1975; Redesignated May 28, 1975; Amendments October 24, 1975; May 23, 1980; June 7, 1989; June 30, 1993; February 13, 1996; January 8, 1998; and June 18, 1998, are made a part of this section, except as provided in subsection (b).

Historical note: §12-202-28.1 is based substantially upon section 12-202-28. [Eff 7/12/82; R 7/6/98]

§12-202-29 REPEALED. [EFF 7/12/82; r 7/6/98] {Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-29.1 1,2-Dibromo-3-Chloropropane. (a) Incorporation of federal standard. Title 29 Code of Federal Regulations. Section 1910.1044, entitled "1,2-Dibromo-3-Chloropropane" published by the Office of the Federal Register, National Archives and Records Administration on March 17, 1978 and the amendments published on May 23, 1980; April 30, 1984; June 7, 1989; June 30, 1993; February 13, 1996; and January 8, 1998, are made a part of this section, except as provided in subsection (b).

Historical note: §12-202-29.1 is based substantially upon section 12-202-29. [Eff 7/12/82; R 7/6/98]

§12-202-30 REPEALED. [Eff 7/12/82; R 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-30.1 Acrylonitrile. (a) Incorporation of federal standard, Title 29 Code of Federal Regulations, section 1910.1045, entitled "Acrylonitrile" published by the Office of the Federal Register, National Archives and Records Administration on October 3, 1978; and the amendments published on May 23, 1980; June 7, 1989; June 30, 1993; February 13, 1996; January 8, 1998; and April 23, 1998, are made a part of this section, except as provided in subsection (b).

(b) Definitions. As used in 29 CFR section 1910.1045 and applied to this section:

"§1910.20" means section 1910.20 in section 12-202-3.

"§1910.132" means section 1910.132 in section 12-64.1-1.

"§1910.133" means section 1910.133 in section 12-64.1-1.

"§1910.141" means section 1910.141 in chapter 12-67. [Eff 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

Historical note: §12-202-30.1 is based substantially upon section 12-202-30. [Eff 7/12/82; R 7/6/98]

§12-202-31 REPEALED. [Eff 7/12/82; R 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-31.1 Inorganic arsenic. (a) Incorporation of federal standard, Title 29 Code of Federal Regulations, section 1910.1018, entitled "Inorganic Arsenic" published by the Office of the Federal Register, National Archives and Records Administration on May 5, 1978; and the amendments published on June 30, 1978; May 23, 1980; June 2, 1989; June 30 1993; February 13, 1996; March 2, 1996; January 8, 1998; and June 18, 1998, are made a part of this section, except as provided in subsection (b).

(b) **Definitions.** As used in 29 CFR section 1910.1018 and applied to this section:

"§1910.20" means section 1910.20 in section 12-202-3.

"§1910.133" means section 1910.133 in section 12-64.1-1.

"§1910.134" means section 1910.134 in section 12-64.1-1.

"§1910.141" means section 1910.141 in chapter 12-67. [Eff 7/6/98] (Auth: HRS §396-4) (Imp HRS §396-4)

Historical note: §12-202-31.1 is based substantially upon section 12-202-31. [Eff 7/12/82; R 7/6/98]

§12-202-32 REPEALED. [Eff 7/12/82; am 8/5/88; R 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-32.1 Cotton dust. (a) Incorporation of federal standard. Title 29 Code of Federal Regulations, section 1910.1043, entitled "Cotton dust" published by the Office of the Federal Register, National Archives and Records Administration, on June 23, 1978; and the amendments published on June 30, 1978; August 8, 1978; December 5, 1978; February 26, 1980; May 23, 1980; October 10, 1980; December 13, 1985; July 3, 1986; June 7, 1989; February 13, 1996; January 8, 1998; and December 7, 2000, are made a part of this section, except as provided in subsection (b). [Eff 7/6/98; am 12/29/01] (Auth: HRS §396-4) (Imp: HRS §396-4)

(b) Definitions. As used in 29 CFR section 1910.1043 and applied to this section:

"§1910.20" means section 1910.20 in section 12-202-3. [Eff 7/6/98] (Auth: HRS §396-4) (Imp HRS §396-4)

Historical note: §12-202-32.1 is based substantially upon section 12-202-32. [Eff 7/12/82, am 8/5/88; R 7/6/98]

§12-202-33 REPEALED. [Eff 7/12/82; am 12/6/82; am 5/28/83; am 8/5/88; am 3/22/91; R 9/21/96]

§12-202-33.1 Lead. (a) Incorporation of federal standard. Title 29, Code of Federal Regulations, section 1910.1025, entitled "Lead", published by the Office of the Federal Register, National Archives and Records Administration, published on November 14, 1978; and the amendments published on October 23, 1979; November 30, 1979; November 12, 1982; March 8, 1983; April 30, 1984; May 31, 1991; October 11, 1995; January 8, 1998; and April 23, 1998, are made a part of this section, except as provided in subsection (b).

(b) Definitions. As used in 29 CFR section 1910.1025 and applied to this section:

"§1910.133" means section 1910.133 in chapter 12-64.1.

"§1910.141" means chapter 12-67.

"29 CFR 1910.134" means section 12-64.1-2.

"29 CFR 1910.20" means section 12-202-3.

"Assistant Secretary" means the director, department of labor and industrial relations, or the director's designee.

"OSHA" means occupational safety and health division, State of Hawaii. [Eff 9/21/96;

am 2/8/97; am 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

Historical note: Section 12-202-33.1 is based substantially upon section 12-202-33. [Eff 7/12/82; am 12/6/82; am 5/28/83; am 8/5/88; am 3/22/91; R 9/21/96]

§12-202-34 REPEALED [Eff 6/16/84; R 2/14/00] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-35 REPEALED. [Eff 6/16/84; am 8/5.88; R 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-35.1 Ethylene oxide. (a) Incorporation of federal standard. Title 29 Code of Federal Regulations, section 1910.1047, entitled "Ethylene Oxide" published by the Office of the Federal Register, National Archives and Records Administration on June 22, 1984; and the amendments published on March 12, 1985; October 11, 1985; July 10,1986; April 5, 1988; July 26. 1988; June 7, 1989; February 13, 1996; and January 8, 1998, are made a part of this section, except as provided in subsection (b).

(b) Definitions. As used in 29 CFR section 1910.1047 and applied to this section:

"§1910.20" means section 1910.20 in section 12-202-3.

"§1910.132" means section 1910.132 in section 12-64.1-1.

"§1910.134" means section 1910.134 in 12-64.1-1. [Eff 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

Historical note: §12-202-35.1 is based substantially upon section 12-202-35. [Eff 6/16/84, am 8/5/88; R 7/6/98]

§12-202-36 REPEALED. [Eff 11/24/88; R 7/6/98] {Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-36.1 Benzene. (a) Incorporation of federal standard. Title 29 Code of Federal Regulations, section 1910.1028, entitled "Benzene" published by the Office of the Federal Register, National Archives and Records Administration on September 11, 1987; and the amendments published on June 7, 1989; December 13, 1996; January 8, 1998; and April 23, 1998, are made a part of this section, except as provided in subsection (b).

(b) Definitions. As used in 29 CFR section 1910.1028 and applied to this section:

"§1910.20" means section 1910.20 in section 12-202-3.

"§1910.133" means section 1910.133 in section 12-64.1-1.

"§1910.134" means section 1910.134 in section 12-64.1-1.

"§1910.1200" means section 1910.1200 in chapter 12-203.1. [Eff 7/6/98; am 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

Historical note: §12-202-36.1 is based substantially upon section 12-202-36. [Eff 11/24/88; R 7/6/98]

§12-202-37 REPEALED. [Eff 6/8/92; am 12/5/92; R 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-37.1 Formaldehyde. (a) Incorporation of federal standard. Title 29 Code of Federal Regulations, section 1910.1048, entitled "Formaldehyde" published by the Office of the Federal Register, National Archives and Records Administration on December 4, 1987; and the amendments published on March 2, 1988; November 8, 1988; December 13, 1988; June 7, 1989; July 13, 1989; August 1, 1989; June 13, 1990; May 27, 1992; June 10, 1992; February 13, 1996; January 8, 1998; and April 23, 1998, are made a part of this section, except as provided in subsection (b).

(b) Definitions. As used in 29 CFR section 1910.1048 and applied to this section:

"§1910.20" means section 1910.20 in section 12-202-3.

"§1910.132" means section 1910.132 in section 12-64.1-1.

"§1910.133" means section 1910.133 in section 12-64.1-1

"§1910.134" means section 1910.134 in section 12-64.1-1.

"§1910.1200" means section 1910.1200 in chapter 12-203.1. [Eff 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

Historical note: §12-202-37.1 is based substantially upon section 12-202-37. [Eff 11/24/88, am 3/22/91, am 6/8/92, 12/5/92; R 7/6/98]

§12-202-38 4,4-Methylenedianiline. (a) Incorporation of federal standard. Title 29, Code of Federal Regulations, section 1910.1050, entitled Methylenedianiline, published by the Office of the Federal Register, National Archives and Records Administration, on August 10, 1992, and the amendments published on January 8, 1998; and April 23, 1998, is made a part of this section, except as provided in subsection (b).

(b) Definitions. As used in 29 CFR 1910.1050 and applied to this section:

"Act" means chapter 396, Hawaii Revised Statutes.

"Assistant Secretary" means the director of the department of labor and industrial relations, State of Hawaii.

"OSHA" means occupational safety and health division, State of Hawaii.

"Startup dates" means six months following the dates listed in paragraph (r) of 29 CFR 1910.1050.

"29 CFR 1910.12(b)" means section 12-50-2.

"29 CFR 1910.20" means section 12-202-3.

"29 CFR 1910.38" means section 12-71-3.

"29 CFR 1910.133" means section 1910.133 in chapter 12-64.1.

"29 CFR 1910.134" means section 12-64.1-2.

"29 CFR 1910.141" means chapter 12-67.

"29 CFR 1910.1200" means chapter 12-203.1. [Eff 2/26/93; am 9/21/96; am 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-39 Cadmium. (a) Incorporation of federal standard. Title 29, Code of Federal Regulations, section 1910.1027, entitled "Cadmium", published by the Office of the Federal Register, National Archives and Records Administration, on September 14, 1992, and the amendments published by the Office of the Federal Register, National Archives and Records Administration, on April 23, 1993, and January 8, 1998, are made a part of this section, except as provided in subsection (b).

(b) Definitions. As used in 29 CFR 1910.1027 and applied to this chapter:

"Assistant Secretary" means the director of the department of labor and industrial relations, State of Hawaii.

"Effective date" means March 14, 1993.

"OSHA" means occupational safety and health division, State of Hawaii.

"OSH Act" means chapter 396, Hawaii Revised Statutes.

"Startup dates" means six months following the dates listed in paragraph (p) of 29 CFR

1910.1027.

"29 CFR 1910.20" means section 12-202-3.

"29 CFR 1910.133" means section 1910.133 in chapter 12-64.1.

"29 CFR 1910.134" means section 12-64.1-2.

"29 CFR 1910.141" means chapter 12-67.

"29 CFR 1910.1200" means chapter 12-203.1. [Eff 2/26/93; am 11/5/93; am 9/21/96; am 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-40 1,3-Butadiene. (a) Incorporation of the federal standard. Title 29, Code of Federal Regulations, section 1910.1051, entitled "1,3-Butadiene", published by the Office of the Federal Register, National Archives and published on November 4, 1996, and the amendment published by the Office of the Federal Register, National Archives and Records Administration, on January 8, 1998 is made a part of this section, except as provided in subsection (b).

(b) Definitions. As used in 29 CFR 1910.1051 and applied to this section:

"29 CFR 1910.20" means section 12-202-3.

"29 CFR 1910.38" means section 12-71-3.

"29 CFR 1910.106" means chapter 12-75.

"29 CFR 1910.120" means chapter 12-99.1.

"29 CFR 1910.133" means section 1910.133 in chapter 12-64.1.

"29 CFR 1910.134" means section 1910.134 in chapter 12-64.1.

"29 CFR 1910.1200" means section 1910.1200 in chapter 12-203.1.

"29 CFR 1926.59" means section 1910.1200 in chapter 12-203.1

"Assistant Secretary" means the director of the department of labor. [Eff 5/2/97; am 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)

§12-202-41 Methylene Chloride. (a) Incorporation of federal standard. Title 29, Code of Federal Regulations, section 1910.1052, entitled “Methylene Chloride”, published by the Office of the Federal Register, National Archives and Records Administration, on January 10, 1997; and the amendments published on August 8, 1997; September 15, 1997; October 20, 1997; December 18, 1997; January 8, 1998; April 23, 1998; and September 22, 1998, are made a part of this section, except as provided in subsection (b).

(b) Definitions. As used in 29 CFR 1910.1052 and applied to this section:

"29 CFR 1910.120" means chapter 12-99.1.

"29 CFR 1910.133" means section 1910.133 in chapter 12-64.1.

"29 CFR 1910.134" means section 1910.134 in chapter 12-64.1.

"29 CFR 1910.307" means section 12-89-8.

"29 CFR 1910.141" means chapter 12-67.

"29 CFR 1910.1000" means section 12-202-4.02.

"29 CFR 1910.1020" means section 12-202-3.

"29 CFR 1910.1200" means section 1910.1200 in chapter 12-203.1.

"29 CFR 1926.59" means section 1910.1200 in chapter 12-203.1.

"Assistant Secretary" means the director of the department of labor. [Eff 7/10/97; am 4/11/98; am 7/6/98] (Auth: HRS §396-4) (Imp: HRS §396-4)